I claim:

1. In planar magnetic transducer including a composite diaphragm formed of a thin film having a metallic material electrical circuit trace pattern on a surface thereof and wherein the diaphragm is mounted within a stator frame such that an active area of the diaphragm having the circuit trace pattern thereon is opposed by at least one magnetic motor driver, the improvement comprising, the film having a high ultimate elongation such that a ratio of ultimate elongation "A" of the film divided by ultimate elongation of the metallic material of the electrical circuit trace pattern is generally greater than approximately 40.

2. The planar magnetic transducer of claim 1 wherein at least one magnetic motor driver is provided on each of opposing sides of the diaphragm within the stator frame.

3. The planar magnetic transducer of claim 1 wherein the film is selected from a group of materials consisting of urethane, Tefzel®, Teflon®, Nylon® and Lycra® materials.

4. The planar magnetic transducer of claim 1 wherein a configuration of the electrical circuit trace pattern and the ultimate elongation "A" of the film causes the composite diaphragm to move in a piston-like manner within the stator frame when electrical power is supplied to the electrical circuit trace pattern to thereby increase acoustic output.

5. The planar magnet transducer of claim 1 wherein the position of the electrical circuit trace pattern and the ultimate elongation "A" of the film is such as to maintain the electrical circuit trace pattern in alignment with a magnetic field created by the at least on magnetic motor driver to thereby increase acoustic output.

6. The planar magnetic transducer of claim 1 wherein an ultimate elongation of the composite diaphragm within the frame is non-uniform across its surface to thereby cause the composite diaphragm to move in a piston-like manner within the stator frame when electrical power is supplied to the electrical circuit trace pattern and thus increases acoustic output.

7. An acoustic speaker incorporating the planar magnetic transducer of claim

1.

8. A method of improving low frequency performance of a planar magnetic transducer including providing a frame defining a central open area and mounting within the frame a composite diaphragm formed of a thin film having a metallic material electrical circuit trace pattern applied thereon and wherein the film has an ultimate elongation which is substantially greater than an ultimate elongation of the metallic material and wherein the circuit pattern is applied to the film in such a manner that the composite diaphragm moves with a piston-like motion within the frame when electrical power is supplied to the circuit pattern.

9. The method of claim 8 wherein the ultimate elongation of the film is selected to be at least approximately forty times that of the ultimate elongation of the metallic material.

10. A planar magnetic transducer having improved low frequency performance, the transducer including a frame in which a composite diaphragm is mounted so as to establish an active area within the frame and wherein the composite diaphragm includes a thin film having a metallic material electrical circuit trace pattern on a surface thereof, at least one magnetic motor driver mounted with the frame for creating a magnetic field, and wherein an ultimate elongation of the active area of the composite diaphragm within the frame is non-uniform across its surface to thereby cause the active area of the composite diaphragm to move in a piston-like manner within the frame when electrical power is supplied to the electrical circuit trace pattern.